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CLOSE RELATIONSHIPS, THE SELF-CONCEPT AND HEALTH BEHAVIORS IN
COLLEGE STUDENTS

by
Erin Fowler

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College

Oxford
May 2017

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ABSTRACT

ERIN DAVIS FOWLER: Close Relationships, the Self-Concept, and Health Behaviors in College Students

(Under the direction of Dr. Elicia C. Lair)

This study investigated whether romantic, parental, and peer relationship satisfaction influence eating behaviors and alcohol consumption through the self-concept. To test this hypothesis, 251 undergraduate students from the University of Mississippi completed an online survey in return for class credit. Participants first answered questions regarding their relationships with their parents, romantic partners, and close friends. These questions were adapted from the Couple's Satisfaction Index (Funk & Rogge, 2007). Next, to assess the self-concept, self-esteem, and objectification participants completed the Robson Self Concept Questionnaire (Robson, 1989), The Rosenberg Self Esteem Scale (Rosenberg, 1965), and The Objectified Body Consciousness Scale (McKinley, & Hyde, 1996). Participants then completed the Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982), and The Daily Drinking Questionnaire (Murphy, McDevitt-Murphy, & Barnett 2005). Finally, participants completed a demographics questionnaire. Conditional process modeling techniques revealed that, for women, close relationships indirectly influence a person's eating behaviors, with higher relationship satisfaction leading to a higher self-concept and in turn fewer disordered eating behaviors. This pattern was strongest for romantic relationship satisfaction in relation to the entire EAT-26 scale. For parental and friend

relationships, there was no initial direct effect on eating behavior, but there was an indirect path through the self-concept to influence eating behavior (the full EAT-26). Self-Esteem was highly correlated with the self-concept and demonstrated similar results. These results suggest that relationship satisfaction can influence eating behavior through the self-concept. Looking at both male and female participants in terms of alcohol usage, no relationship appeared between close relationship satisfaction, the self-concept, and alcohol usage.

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Introduction

Eating disorders impact many individuals and comprehensively hold a higher mortality rate than any other mental illness in the United States (Smink, van Hoeken, & Hoek, 2012). These mental disorders arise for a combination of reasons, including genetics, environment, and personality (Culbert, Racine, & Klump, 2015).

Approximately 20 million women and 10 million men develop some form of a “clinically significant eating disorder” during the course of their lives (Wade, Keski-Rahkonen, & Hudson, 2011). Therefore, eating disorders clearly impact a large amount of individuals and can produce devastating health consequences.

According to The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013), anorexia nervosa, bulimia nervosa, binge eating disorder, and other specified feeding or eating disorders are four of the primary types of eating disorders (American Psychiatric Association, 2013, p. 338, 345, 350, 353). Anorexia nervosa, an eating disorder affecting 9% of the American population at some point in their lives (Hudson, Hiripi, Pope, & Kessler, 2007) is characterized by an obsessive fear of gaining weight coupled with the compensatory behavior of limiting calorie intake. Individuals suffering from anorexia are typically so consumed with losing weight and achieving their ideal body type that they either cannot or refuse to recognize the reality of their destructive behaviors (American Psychiatric Association, 2013, p. 338-339). Bulimia nervosa, on the other hand, is typified not only by the fear of gaining weight but also by repeated instances of binge eating followed by a variety of purging behaviors such as vomiting, laxatives, or excessive exercise (American Psychiatric Association, 2013, p. 345). Within the U.S. population, 1.5% of individuals are diagnosed

with bulimia at some point in their lives (Hudson et al., 2007). Binge eating disorder defined as repeated episodes of bingeing without any sort of compensatory behaviors (American Psychiatric Association, 2013, p. 350), and 2.8% of Americans are diagnosed with this disorder (Hudson et al., 2007). Individuals who are diagnosed with other specified feeding or eating disorders meet some of the diagnostic requirements for one or more eating disorders and cannot function normally; yet, they do not exhibit the exact specifications of a particular eating disorder (American Psychiatric Association, 2013, p. 354). Although these diagnostic distinctions are clinically important and are useful for determining different treatment methods, prior research suggests that eating behavior is not wholly categorical, with some people having healthy habits and others having unhealthy habits, but instead exists on a continuum from healthy to disordered eating habits (Shisslak, Crago, & Estes, 1995). Additionally, research indicates that the tendency to engage in disordered eating behaviors progresses over time (King, 1989, 1991; Patton, 1988; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990; Schleimer, 1983). Furthermore, within the U.S. population, numerous individuals express body dissatisfaction, the most influential contributor to the progression of anorexia, bulimia, and sub-clinical disordered eating attitudes and behaviors (Stice, 2002). Considering these findings, this study is concerned with how social factors influence disordered eating in a non-clinical population.

The current work investigates whether social factors such as close relationship satisfaction and one's self-concept are related to disordered eating behavior in a non-clinical, college student female population. This population is important to study for a variety of reasons. For instance, while observing a sample of adolescent girls between the

ages of 12-20, researchers found that 5.2% demonstrated the diagnostic standards for anorexia, bulimia, and binge eating disorder, and 13.2% exhibited general eating disorder characteristics by their 20th birthday (Stice, Marti, Shaw, & Jaconis, 2010). Similarly, within an extensive sample of college students, 13.5% of the female sample and 3.6% of the male sample exhibited symptoms of eating disorders (Eisenberg, Nicklett, Roeder, & Kirz, 2011), and in another university study, 4.5% of female college students admitted to receiving treatment for an eating disorder prior to the study while 10.9% of that sample were found to be at risk for developing an eating disorder (Hoerr, Bokram, Lugo, Bivins, & Keast, 2002). Additional research shows that the age of onset for anorexia and bulimia is decreasing, with anorexia typically developing at the age of 16 and bulimia at the age of 17 (Favaro, Caregaro, Tenconi, Bosello, & Santonastaso, 2009).

In addition to disordered eating, the current work also examines whether social relationships and the self-concept relate to drinking behavior in a non-clinical population of college students. Due to cultural norms that treat alcohol as a celebratory substance as well as alcohol's ability to temporarily elevate mood and decrease anxieties, social pressures, and negative emotions, Americans frequently consume alcohol in large quantities (American Psychiatric Association, 2013, p. 498; Cooper, 1994). Nevertheless, excessive alcohol consumption often results in detrimental consequences, hindering one's judgment and coordination, triggering aggressive behavior, producing fluctuations in emotion, impairing overall health, and leading to alcohol disorders. One such disorder, Alcohol Use Disorder, is a dependence upon alcohol that interferes with an individual's health and ability to function normally (American Psychiatric Association, 2013, p. 490-497). While a majority of the people who consume alcohol are not dependent upon the

substance (Esser et al., 2014), according to the Centers for Disease Control and Prevention (CDC), one out of six U.S. adults admitted to recurrent and extreme binge drinking behaviors (CDC, 2012). These statistics suggest that even if drinkers are not clinically dependent on alcohol, they may still exhibit unhealthy habits with alcohol.

Within the U.S., recent evidence reports a high prevalence of alcohol consumption among college students. The 2015 National Survey on Drug Use and Health stated that 58% of college students (as compared to 48.2% of non-students of the same age) drank alcohol in the last month, with 37.9% of students (vs. 32.6%) reporting binge drinking, and 12.5% of students (vs. 8.5%) reporting heavy alcohol use (Substance Abuse and Mental Health Services Administration, 2015). Additionally, the data collected from 119 universities revealed a high prevalence of alcohol consumption on college campuses with over 30% of the sample reporting at least one characteristic of alcohol abuse and over 40% reporting at least one characteristic of alcohol dependence (Knight, Wechsler, Kuo, Seibring, Weitzman, & Schuckit, 2002). Considering this data, the current work also explores the social factors associated with drinking behavior in a male and female college student population.

This study investigates whether social factors such as close relationship satisfaction and one's self-concept are related to disordered eating or unhealthy drinking behavior in college students and hypothesizes that an indirect relationship exists between relationship satisfaction, the self-concept, and health behaviors. After an overview of how close relationships influence health behaviors, the manner in which close relationships influence one's self-concept is discussed. Then, a review of how the self-concept

influences health behaviors is provided, followed by a description of the aims of the current work and its hypotheses.

Close Relationships Impacting Health Behaviors

Prior research has suggested that close relationships may directly influence health behaviors, specifically those surrounding disordered eating and alcohol consumption.

Social support, “a social network’s provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (House & Kahn, 1985), has been shown to impact health. It is theorized that the presence of social support is beneficial because individuals are aware that they will receive assistance from their social network in managing their stressful situations, and this knowledge alleviates stress levels and lowers their likelihood of engaging in detrimental behaviors (Cohen & Wills, 1985; Thoits, 1986; Wethington & Kessler, 1986). This has been shown to directly impact health behaviors, such as exercise. For example, researchers studying exercise behaviors in adults determined that social support predicts exercising behaviors (Courneya, Plotnikoff, Hotz, & Birkett, 2000), even more so than social norms (i.e., the perceived expectations of how one must behave or appear in order to gain acceptance amongst their peers). This prior work suggests that close relationships can influence health behaviors through perceived support.

Previous research also indicates that social relationships may influence one’s motivation to engage in healthy or unhealthy behaviors. For instance, group norms within friendships have been shown to influence health behaviors and motivations. Social groups and individual relationships can affect individuals through peer pressure and social norms, exposure to which increases the adoption of health behaviors such as

exercise, eating habits, or interaction with drugs (for a review see Cohen, 2004). The suggested mechanism for this connection is that peers, friends, and even people in one's immediate environment can influence the social norms associated with health. In this manner, friends help shape an individual's perception of what is considered healthy and unhealthy. Therefore, there is much evidence to suggest that relationships can shape an individual's beliefs about what types of behaviors are healthy and can additionally influence whether or not an individual engages in healthy or unhealthy behaviors.

By studying how an individual's social-life directly influences an individual's health behaviors, recent evidence has revealed that close relationship factors impact disordered eating behaviors. For instance, researchers found "impaired psycho social functioning" to serve a risk factor for anorexia nervosa, theorizing that individuals who struggle to establish satisfactory relationships with their peers and family demonstrate a greater risk of developing anorexia (Stice, Rohde, Shaw, & Gau, 2015). Similarly, inadequate social support was correlated with the development of bulimia nervosa (Stice et al., 2015; Stice, Presnell, & Bearman, unpublished manuscript as cited in Stice, 2016) and minimal social support from one's family was associated with the development of any eating disorder (Ghaderi & Scott, 2001).

Group norms also appear to influence eating behaviors as results from a correlational study reported that girls (tenth graders) who perceived their friend groups to emphasize body image, thinness, restrictive eating, binge eating, and weight loss behaviors also molded their lifestyles to reflect these motivations (Paxton, Schutz, Wertheim, & Muir, 1999). Similarly, girls who believed that thinness would enhance their friendships were more likely to develop body image concern, body dissatisfaction,

and restrained eating (Gerner & Wilson, 2005). Essentially, these observations demonstrate how close relationships can influence related health motivations through expectations about social norms and social acceptance.

Relationships, however, can additionally become sources of stress within a person's life, which consequently might make an individual more susceptible to illnesses or increase his or her likelihood of engaging in risky behaviors (Cohen et al., 1998). For example, a study of undergraduate female students found that dietary restraint (i.e., reducing the amount of food one consumes) occurred most frequently among women who perceived low levels of control within relationships (Cain, Bardone-Cone, Abramson, & Joiner, 2010). Furthermore, it has been noted that lower perceptions of parental nurture and higher degrees of protective, maternal behavior are indicative of increased disordered eating among adolescents, with feelings of shame and inadequacy also serving as mediators (Turner, Rose, & Cooper, 2004).

Close relationships have also exhibited an ability to impact alcoholic tendencies. For example, the more one identifies with a peer group, the more his or her drinking behavior will match perceptions of that group's alcohol trends (Neighbors et al., 2010), such that if one's peer group tends to drink more, so will that individual. However, aside from group norms of drinking behaviors it appears that engaging in social activities within a group may reduce drinking behavior overall. A study investigating social integration (e.g., the extent to which one participates within a group) found that individuals with greater integration in their social groups reported fewer alcohol and smoking behaviors (Cohen & Lemay, 2007).

In regard to relationship quality, stronger relationships have been found to decrease reckless or excessive drinking behaviors. For example, alcohol dependent adolescents reported strained, unsatisfactory relationships with their parents (Kuperman, Schlosser, Kramer, Bucholz, Hesselbrock, Reich, & Reich, 2001). In addition, college freshmen whose parents engaged in higher levels of monitoring throughout adolescence exhibited lower levels of excessive alcohol consumption in their first year of college (White, McMorris, Catalano, Fleming, Haggerty, & Abbott, 2006). Similarly, adolescent girls (vs. boys) were less (vs. more) likely to adopt the alcoholic behaviors of their friends when their parents exhibited a higher degree of social support and adequate discipline (Marshall & Chassin, 2000). It was suggested that boys may have perceived the parental support and discipline as threatening to their desired independence and sense of control. Thus, even though the same parenting techniques had opposite effects on gender, these results indicate an association between perceived parental support and drinking behavior (Marshall & Chassin, 2000). Overall, these findings show that perceived parental support and engagement influences adolescents' decisions to either refrain from or mirror the alcohol practices of their friends.

In addition to peer and parental influences on drinking behavior, satisfaction with a romantic relationship has also been found to be related to drinking behavior. For example, research identified a correlation between relationship conflict and frequent and dangerous drinking behaviors in college students (Carey, 1995). Researchers have also demonstrated that alcohol serves as a coping mechanism among adults when they are attempting to alleviate the negative emotions elicited from romantic conflict (Lambe, Mackinnon, & Stewart, 2015; Levitt & Cooper, 2010). Taken together, it appears that

close relationships can influence health through social support and by establishing norms. The current work seeks to examine whether the perceived quality of close relationships (as measured by relationship satisfaction) influences health behaviors and examines the self-concept as a potential mechanism through which social relationships may influence health.

Close Relationships Impacting the Self-Concept

The current work proposes that close relationships are associated with health behaviors, but that this is an indirect relationship that works through the self-concept. In other words, close relationships influence the self-concept, which in turn influences health behaviors. The self-concept is generally considered to be the beliefs that one has about oneself (Baumeister, 1999), and prior research demonstrates that our relationships with others can influence these beliefs. There is a robust literature demonstrating that close relationships influence how individuals think about themselves and that this process begins when adolescents begin forming adult identities. For example, both parent and peer relationships contribute to the development of adolescents' self-concepts (Hay & Ashman, 2003). This is consistent with earlier work demonstrating that when individuals enter adolescence, they begin defining themselves by their relationships, primarily through peer networks, but also, to a lesser degree, their parents (Meeus, & Deković, 1995). In addition, within a longitudinal study following the effects of marital conflict and divorce on families, the degree of household conflict reflected children's self image and levels of anxiety (Burns & Dunlop, 2002). Throughout the study's ten-year progression, the children's self-image and anxiety levels continued to reflect the current level of family conflict, rather than earlier conflict levels. These results suggest that

children's self-concepts are sensitive to family relationships and are subject to change with experience (Burns & Dunlop, 2002). Thus, the people who are closest to an individual and the nature of their relationships with that individual can influence how he or she conceives him or herself.

Prior research has also implied that romantic relationships alter a person's self-concept. For example, research shows that people involved in close relationships integrate the other person into their sense of self (Aron, Aron, Tudor, & Nelson, 1991). By adopting characteristics or mentalities of a romantic partner, the way one views oneself changes. Later research strengthened this idea by demonstrating how the process of falling in love alters the self-concept and increases perceived self-efficacy and self-esteem (Aron, Paris & Aron, 1995). Notably, these results held even when controlling for fluctuating emotions, further substantiating these findings and ruling out the potential explanation that emotional differences led to these changes in the self-concept. In addition, the Michelangelo phenomenon contributes a thought-provoking component to the idea of romantic relationships altering the self-concept. According to the Michelangelo phenomenon, romantic partners influence how an individual shapes himself or herself. Based on affirmation, or lack thereof, from their romantic partners, individuals mold their ideal selves and develop motivations with the goal of reaching that self (Drigotas, 2002).

Although the self-concept involves the thoughts one has about the self, it is possible that the way one feels about the self (i.e., self-esteem) may also play an important role in this indirect relationship between close relationships and health behaviors. Self-esteem is defined as feelings of self-worth or self-respect (Rosenberg,

1965) and is related to overall life satisfaction (Diener, 1984). Related work on subjective well-being (which involves one's outlook on life and life satisfaction; Diener, 1984) suggests that close relationship satisfaction is related to increased personal well-being (Diener, Suh, Lucas, & Smith, 1999). Well-being is also related to a longer life-span (Diener & Chan, 2011), demonstrating that a theoretical indirect relationship exists between relationship satisfaction, well-being, and health, supported by prior work.

In contrast, romantic relationships can sometimes negatively influence self-esteem through relationship-contingent self-esteem, the self-esteem derived from the perceived security and success within an individual's romantic relationship. Relationship-contingent self-esteem differs from legitimate intimacy, happiness, or dedication within a romantic relationship. Instead, whatever state the relationship is currently in reflects the individual's conception of self-value and resulting feelings about the relationship (Knee, Canevello, Bush, & Cook, 2008). Importantly, these findings indicate that those eliciting their self-worth from their relationships exhibit much lower self-esteem whenever they encounter negative situations surrounding their relationship. Thus, the close relationships that people have with others not only influence what one thinks about oneself, but also the way one feels about oneself. Therefore, the current work investigates whether these thoughts and feelings about the self relate to how one behaves toward the self, through health behaviors.

The Self-Concept Influences Eating Behaviors and Alcohol Consumption

Although research has demonstrated that a person's self-concept is influenced or shaped by relationships, additional work suggests that the way people feel or think about themselves impacts eating behaviors. For example, feeling insignificant,

unsuccessful, and insecure has been shown to predict bulimia nervosa (Killen et al. 1996). Moreover, after inducing performance failure on a quiz, researchers found that female college students were more likely to self-report emotional eating (unhealthy eating in response to emotional situations) than those without performance failure, revealing that when participants viewed themselves as failures or insufficient, they engaged in unhealthy eating habits. (Bekker, van de Meerendonk, & Mollerus, 2004). In one study involving undergraduate women, researchers observed that lower levels of personal empowerment were related to an increase in disordered eating behaviors and higher body dissatisfaction (Peterson, Grippo, & Tantleff-Dunn, 2008). This research demonstrated that when women viewed themselves as powerless, their tendency to engage in disordered eating instead of healthy balanced eating behaviors increased.

Self-objectification, a specific correlate to the self-concept, has also been shown to influence disordered eating behaviors. Frederickson and Roberts (1997) developed the Objectification Theory, stating that living within a sexualized culture, women learn to “view and treat themselves as objects to be evaluated on the basis of their appearance” (p. 7). In general, there is consensus in the literature that women higher in body dissatisfaction have more disordered eating habits (Stice, 2016). Women higher in body objectification are also more likely to experience lower self-esteem and body dissatisfaction, reporting a greater likelihood of exercising in order to enhance or maintain their appearance rather than to improve their health (Strelan, Mehaffey, & Tiggemann, 2003). Moreover, Mercurio and Landry (2008) found that the relationship between body objectification and self-esteem was mediated by body shame.

A large body of literature demonstrates that self-esteem relates to disordered

eating. Research shows that low self-esteem is associated with eating disorders (Ghaderi & Scott, 2001), and specifically binge eating behaviors (Heatherton & Baumeister, 1991). Likewise, researchers examining adolescent girls found that self-esteem predicted unhealthy eating behaviors, but this was mediated by overvaluing the importance of a thin body type (Wade & Lowes, 2002). Other work reports that generalized guilt and shame (which are associated with low self-esteem) did not predict disordered eating; however, feelings of guilt and shame in reference to food were highly correlated with disordered eating behaviors (Burney & Irwin 2000). Previous work also suggests that relationship contingent self-esteem may lead to disordered eating patterns as individuals expressing higher levels of relationship-contingent self-esteem reported increased body dissatisfaction and appearance-based shame (Grossbard, Neighbors, Larimer, 2009; Sanchez & Kwang, 2007).

In contrast, higher levels of self-esteem predict healthier eating behaviors. When adolescent females who were prompted to engage in self-affirmation by recalling situations in which they performed acts of kindness were less likely to engage in dissatisfied body thoughts. These findings suggest that affirmation encourages girls to concentrate less on body image when evaluating their self-esteem, and, instead, prompts them to derive their self-esteem from alternate areas of their lives (Armitage, 2012). Similarly, using self-affirmation strategies to correct for low self-esteem in adults made them more receptive to a message about fabricated health risks of caffeine and in turn they were less likely to consume caffeine following the experiment (Reed & Aspinwall, 1998). Furthermore, when individuals believed that their external appearance and internal personality traits were comprehensively accepted by others, they displayed a lesser

degree of body dissatisfaction and were more likely to engage in intuitive eating (i.e. addressing bodily needs when eating) and concentrate on their bodies' ability to function rather than its appearance (Avalos & Tylka, 2006).

Research also supports the relationship between low self-concept and alcohol consumption. The self-concept has been shown to predict the age that adolescents begin drinking, such that out of adolescents engaging in drinking behaviors, those with a lower self-concept began drinking at an earlier age than adolescents with more positive views of themselves (Corte & Zucker, 2008). Low self-esteem has also been shown to influence drinking behaviors. In a college fraternity party setting, a positive correlation was observed between low self-esteem and blood alcohol content (BAC), such that attendees with low self-esteem had higher BAC's than those exhibiting higher self-esteem (Glindemann, Geller, & Fortney, 1999). In another study, female college students with low self-esteem exhibited heavier drinking behaviors than females with higher self-esteem (Corbin, McNair, & Carter, 1996), and additional research indicated that adolescents with high self-esteem were less likely to engage in drinking behaviors or gradually develop drinking behaviors (Gerrard, Gibbons, Reis-Bergan, & Russell, 2000). Appearance based self-worth also indicated increased alcohol consumption among college students (Luhtanen & Crocker, 2005).

Taken together, these results corroborate the idea that variations of self-concept, whether defined as self-esteem, self-worth, body objectification, or other related areas have been shown to impact eating and drinking behaviors. The current work examines whether close relationships indirectly influence eating and drinking behavior through the self-concept and self-esteem. Further, this work also examines if the association between

the self-concept (and self-esteem) and eating behavior is indirectly accounted for by body objectification.

Support for an Indirect Path Between Close Relationships, Self-concept, and Health Behaviors

The previous sections of the current work discussed the direct relationships between close relationships, the self-concept, and eating behaviors. Now, a brief review of prior work suggesting an indirect relationship exists between these constructs (or closely related constructs) is provided. Some prior work has suggested that an indirect pathway exists between close relationships, the self-concept, and behavior in general. For example, researchers investigating academic achievement in Korean students have already demonstrated that close relationships (i.e., aspects of family life) influence the academic self-concept, which in turn influences academic behavior (Song & Hattie, 1984).

This effect extends to other areas, particularly health behaviors, but has not yet been examined formally with regard to self-concept measures. For example, among female college students, those who had difficulty achieving successful social interactions tended to also exhibit disordered eating behaviors, a relationship that was partially accounted for by self-esteem (Lampard, Byrne, & McLean, 2011). Self-esteem also mediated a relationship between high dependence on the acceptance of others and increased disordered eating (Lampard et al., 2011). Furthermore, in their correlational study of tenth grade girls from Australia, Schutz & Paxton (2007) found that lower levels of friendship satisfaction were related to higher levels of body dissatisfaction and disordered eating. They also found that those who believed that lower weight or a thinner

body frame would produce more satisfactory social support reported greater amounts of body dissatisfaction and disordered eating. However, after participants' depressive symptoms (often negatively correlated with self-esteem) were accounted for, the correlational relationship either decreased or disappeared completely. An additional study with a population of high school aged females found that those who gauged their self-worth in terms of their intimate relationships exhibited lower self-esteem and body satisfaction, increased disordered eating behaviors, and a reliance on culturally relevant definitions of thinness (Geller, Zaitsoff, & Srikameswaran, 2002). Stice and Whitenton's (2002) study of adolescent girls strengthens these findings as a longitudinal study found that insufficient social support predicted a rise in body dissatisfaction. Thus, prior research suggests that close relationship factors and eating behaviors are indirectly related through aspects of the self-concept.

Additional work supports this same indirect relationship may exist for alcohol consumption. Social approval of peers also seems to play a role in motivating drinking behavior, with students who derive their self-esteem from social approval demonstrating a greater likelihood of consuming alcohol if peer approval of alcohol consumption is perceived as high (Neighbors, Larimer, Geisner, & Knee, 2004). In this study, individuals with low self-esteem were more likely to drink alcohol in general, and these same individuals were motivated to reap social rewards (and subsequently boost their own self-esteem) if they perceived there was peer approval for alcohol consumption. Taken together, these findings support the idea that close relationships may serve as a protective function against a negative self-concept, which in turn may influence how individuals approach their health.

Research Question

The current work investigates the relationships between close relationship satisfaction (peer, parental, romantic), the self-concept (including self-esteem and body objectification) and health behaviors (disordered eating and alcohol consumption). It was hypothesized that higher close relationship satisfaction would be related to healthier behaviors, but that this relationship would be accounted for by increases in the self-concept and self-esteem. For eating behavior in particular, it was also hypothesized that the self-concept and self-esteem would indirectly work upon eating behaviors through body objectification. Due to the somewhat exploratory nature of the work, there were not firm predictions as to whether parents, peers, or romantic relationships would produce similar or different results, but investigated them separately in order to determine if different patterns emerged.

Methods

Participants and design

251 undergraduate students (68% female and 32% male) from the University of Mississippi were recruited to participate in this study and received class credit in their general psychology classes as compensation. Participants were 76% Caucasian, 18% African American, 0.016% Hispanic, 0.016% Asian, 0.016% of Mixed Race, and 0.012% chose not to respond. 58.5% of the sample identified as single (i.e., not currently in a romantic relationship). Female participants on average had a Body Mass Index (BMI) of 23.3 ($SD = 4.7$; calculated from self-reported height and weight) and male participants on average had a BMI of 25.4 ($SD=4.1$). Each participant anonymously completed a 45-minute online survey that assessed their close relationship satisfaction (friend, parental, romantic), self-esteem, self-concept, body objectification, disordered eating behaviors,

alcohol consumption behaviors, and general demographics. All relationship questionnaires were completed first (in random order), then self-concept, self-esteem, and body objectification measures were completed (in random order), followed by the eating behavior measure, the alcohol consumption measure, and then demographics. This study employed a correlational design.

Measures

Close Relationship Satisfaction. Participants first answered three questionnaires about their attitudes and feelings surrounding their relationships with their romantic partners, parents, and close friends. Relationship satisfaction for romantic, parental, and friend relationships were assessed by creating our own scale. This measure was heavily adapted from Funk and Rogge's Couples Satisfaction Index (CSI-32; 2007) and was designed to determine relationship satisfaction and functioning in several areas, including how positively the individual views the relationship, how much support is perceived by them, and how much they feel valued in the relationship. Participants were asked to rank their responses to 18 questions, such as "Do you believe that your romantic partner/parents/friend group will still love you in the presence of failure" or "Do your parents help satisfy your emotional needs?" (1- *very inaccurate* to 10 -*very accurate*). For questions involving romantic relationships, participants not currently involved in a romantic relationship were instructed to answer them "in the context of either a past romantic relationship or how you think you would act if you were involved in a romantic relationship" (58.5% were single). After reverse scoring appropriate items, participants' responses were averaged together to create 3 separate means (Romantic: Cronbach's $\alpha = .948$; Parent: Cronbach's $\alpha = .933$; Friend: Cronbach's $\alpha = .919$). Higher

values on this scale indicate greater relationship satisfaction. For full wording of questions and response scales see *Appendix A*.

Self-Concept Measures.

The Robson Self-Concept Questionnaire. The Robson Self Concept Questionnaire (Robson, 1989), prompted participants to either agree or disagree with 31 statements about themselves, such as “I can like myself even when others don’t.” (1- *completely disagree* to 8- *completely agree*). The answers were calculated using a total sum score after reverse scoring appropriate items (Cronbach’s alpha = .935). Higher scores on this scale indicate a positive self-concept. For full wording of questions and response scale see *Appendix B*.

The Objectified Body Consciousness Scale. The Objectified Body Consciousness Scale (McKinley, & Hyde, 1996) asked participants to respond to a series of 25 statements about the degree to which they viewed their body as a satisfactory object, rather than a tool meant to help them effectively function. This scale also measures the amount of shame an individual experiences if unable to attain an ideal figure. Participants either agreed or disagreed with 24 statements, such as “I think that it is more important that my clothes are comfortable than whether they look good on me” or “I feel ashamed of myself when I haven’t made the effort to look my best” (1- *strongly disagree* to 8 - *strongly agree*). The answers were calculated using a total sum score after reverse scoring the appropriate items (Cronbach’s alpha = .753). Higher scores on this questionnaire indicate positive body awareness, and lower scores indicate more objectification of one’s body. For full wording of questions and response scale see *Appendix C*.

The Rosenberg Self Esteem Scale. The Rosenberg Self Esteem Scale,

(Rosenberg, 1965) measured participants' self-esteem levels by asking participants the degree to which they identified with 11 statements, such as "I take a positive attitude toward myself." or "I certainly feel useless at times." (1- *strongly disagree* to 4- *strongly agree*). The extent to which each participant identified with each statement indicated his or her levels of self-esteem with higher scores indicating higher self-esteem. The answers were calculated using a total sum score after reverse scoring the appropriate items (Cronbach's alpha = .91). For full wording of questions and response scale see *Appendix D*.

Health Behavior Measures.

The Eating Attitudes Test-26. The Eating Attitudes Test-26 (Garner et al., 1982), commonly referred to as the EAT-26, is a 32-question survey that evaluates the normalcy or lack thereof of participants' eating behaviors. Participants were asked how frequently they engaged in behaviors involving eating, exercise, and body consciousness, such as "I avoid eating when I am hungry" or "I think about burning up calories when I exercise" (1 –*always* to 6-*never*). These item responses were then scored according to the official scoring system for the EAT-26 scale, in which responses of *Sometimes*, *Rarely*, or *Never* (original values of 4, 5, and 6) are recoded as 0. Responses of *Always* (original value of 1) was recoded as 3, *Usually* (original value of 2) was kept at a value of 2, and *Sometimes* (original value of 3) was recoded as a value of 1. The total score was then calculated by creating a total sum score (some items were reverse scored), with higher totals indicating higher levels of disordered eating (Cronbach's alpha = .887). For full wording of questions and response scale see *Appendix E*.

The Daily Drinking Questionnaire-Revised. The Daily Drinking Questionnaire (DDQ-R,

Murphy, McDevitt-Murphy, & Barnett 2005) is comprised of 4 categories, each containing questions about the participant's alcohol consumption. The first category asked participants to record their drinking behaviors from a typical week, including the number of drinks consumed in a typical week (Monday-Sunday) as well as the number of hours spent drinking during that week. Asking a similar question, the second category asks participants to record their total number of drinks and hours spent drinking from their heaviest drinking week of the month. Next, the participants listed how many times they had consumed alcohol in the past month, choosing from seven options ranging from 1- "I did not drink at all" to 7- "Once a day or more." Finally, the participants were asked to provide the total number of drinks that they consumed on any typical weekend evening in the past month as well as how many drinks they consumed during the event where they drank the most alcohol in the past month. Each category was averaged together to calculate their individual means. In order to fully assess the participants' alcoholic behaviors, we separated the number of drinks and hours of drinking response categories into three subcategories: the entire week (Monday-Sunday), weekdays (Monday-Thursday), and the weekend (Friday-Saturday). Taking the student culture of The University of Mississippi into account, Friday was included in the weekend count and Sunday was eliminated. This yielded several different measures to assess drinking behavior: (1) Typical number: number of drinks/week; number of drinks/weekday; number of drinks/weekend ($M=3.34$, $SD=4.03$). (2) Heaviest number: number of drinks/heaviest drinking week; number of drinks per/weekday in heaviest drinking week; number of drinks in heaviest drinking weekend ($M=3.87$, $SD=4.53$) (3) Typical number of hours: number of hours spent drinking/week; number of hours spent

drinking/weekday; number of hours spent drinking/weekend ($M=2.79$, $SD=2.9$). (4)
Heaviest number of hours: number of hours spent drinking/heaviest drinking week;
number of hours spent drinking/heaviest weekdays; number of hours spent
drinking/heaviest drinking weekend ($M=2.93$, $SD=3.23$). After excluding 8 outliers, the
means of the weekend measures were: number of drinks/weekend ($M=3.0$, $SD=3.27$);
number of drinks in heaviest drinking weekend ($M=3.60$, $SD=4.11$); number of hours
spent drinking/weekend ($M=2.64$, $SD=2.73$); number of hours spent drinking/heaviest
drinking weekend ($M=2.79$, $SD=3.04$). For full wording of questions and response scale
see *Appendix F*.

Attention Check and Demographics. Next, participants completed an attention-check task to see who read the instructions to an item before answering survey questions. This was adapted from prior work and asked students to indicate where they preferred to study on campus from a list of options, but in fact they were instructed to check “none of the above” (Oppenheimer, Meyvis & Davidenko, 2010). This item did not work properly because over 90% of the sample failed this attention check and when examining the remaining responses these participants did not appear to use careless responding. Therefore this item was not used to eliminate participants. Following this brief question, participants were asked about their ethnicity, their romantic relationship status, and their involvement in campus organizations. Following the demographic questions, the participants were redirected to a separate survey prompting them to provide their names to ensure they would receive class credit while maintaining anonymity. The second survey also included a list of services that might serve as assistance for any discomfort instigated by the survey.

Results

Close Relationship Satisfaction, Self-Concept, and Disordered Eating Analyses

The bivariate relationships between our variables of interest are presented in Table 1. Based on the previous literature's common focus of eating behavior investigations, and because the male responses for the EAT-26 did not have sufficient prevalence, ($M=6.3$, $SD=7.92$), only female participants ($M=9.90$, $SD=9.64$) will be analyzed with regard to the eating behavior analyses.

Romantic Relationship Satisfaction, Self Concept, EAT-26 Analysis.

Conditional Process Modeling using Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect, (ab path), $b = -.927$, 95% CI $[-1.645, -.425]$, between romantic relationships and eating behaviors through the self-concept. As indicated in *Figure 1*, the initial negative direct association (c path) between romantic relationship satisfaction and disordered eating is diminished (c' path) when the model accounts for the self-concept. Higher scores on the EAT-26 indicated more disordered eating behavior.

Table 1

Bivariate Correlations between Variables of Interest for Women (n=171)

Measure	1	2	3	4	5	6	7
1. Romantic Satisfaction	--						
2. Parent Satisfaction	.417**	--					
3. Friend Satisfaction	.480**	.627**	--				
4. Self-Concept	.550**	.558**	.657**	--			
5. Self-Esteem	.489**	.498**	.547**	.830**	--		
6. Body Objectification	.119	-.087	-.021	.199**	.199**	--	
7. EAT-26	-.173*	-.039	-.046	-.305**	-.311**	-.408**	--
8. BMI	-.104	-.053	-.013	-.055	.005	-.056	-.020

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

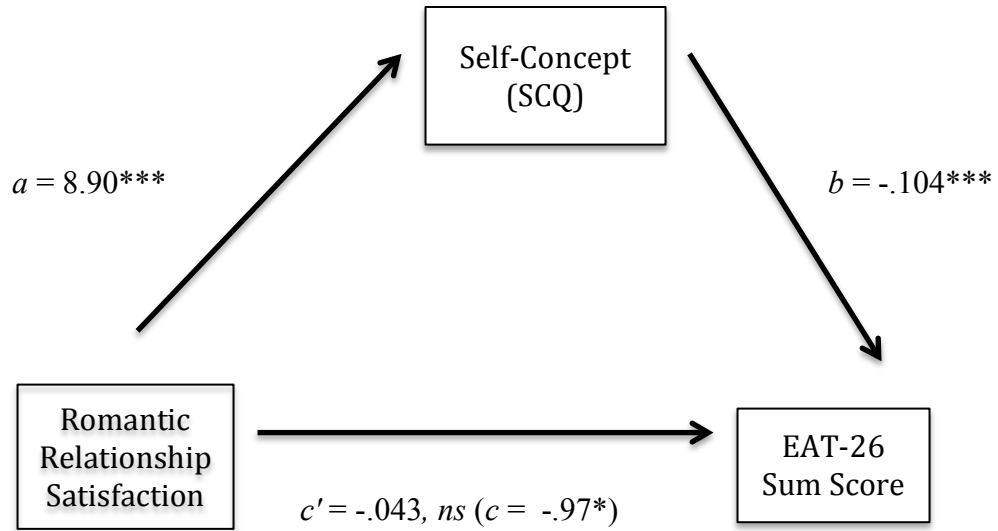


Figure 1. Relationship between romantic relationship satisfaction and disordered eating behaviors accounted for by the self-concept ($n=171$).

Parental Relationship Satisfaction, Self Concept, EAT -26 Analysis.

Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect (ab path), $b = -1.435$, 95% CI $[-2.301, -.799]$, between parental relationships and eating behaviors through the self-concept. The initial direct effect between parental relationships and disordered eating behaviors was not present. Once the self-concept was accounted for, parental relationships with higher satisfaction actually led to significantly more disordered eating (see *Figure 2*).

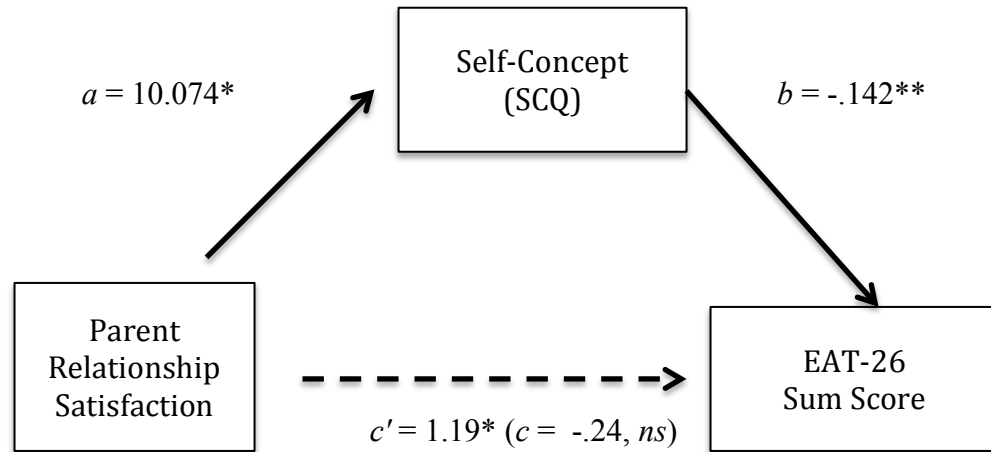


Figure 2. Relationship between parental relationship satisfaction and disordered eating behaviors accounted for by the self-concept ($n=171$).

Friendship Satisfaction, Self Concept, EAT-26 Analysis. Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect (ab path), $b = -1.999$, 95% CI $[-3.038, -1.174]$, between friend relationships and eating behaviors through the self-concept. Friendship satisfaction functioned similarly to parental satisfaction in this model, and the initial direct effect between friend relationships and disordered eating behaviors was not present. Once the self-concept was accounted for, friendships with higher satisfaction led to more disordered eating (see *Figure 3*).

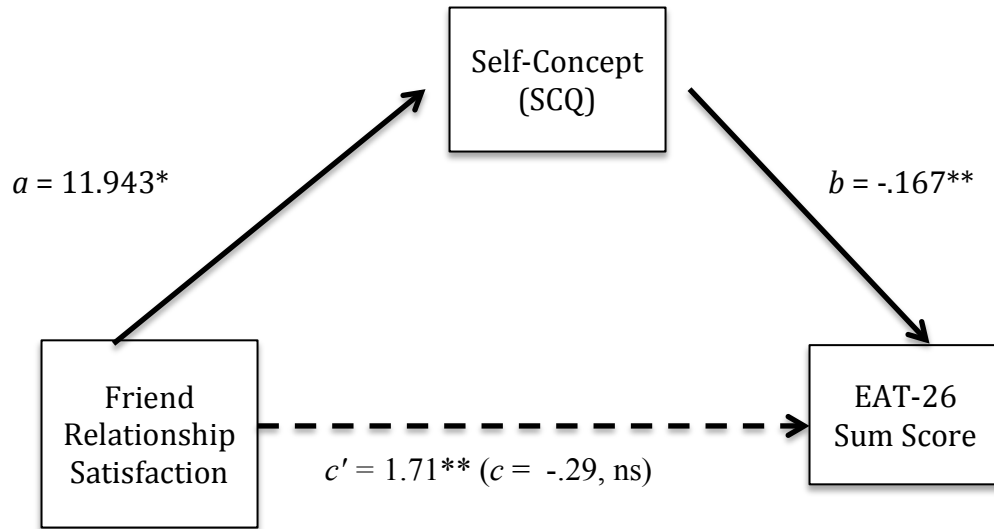


Figure 3. Relationship between friendship satisfaction and disordered eating behaviors accounted for by the self-concept ($n=171$).

Close Relationship Satisfaction, Self-Esteem, and EAT-26 Analyses. After observing self-concept's relationship between close relationship satisfaction and eating behavior, self-esteem was additionally investigated related to relationship satisfaction and disordered eating in order to determine whether it would function in a similar pattern or produce different results. However, after running a bivariate correlation between SES and SCQ and observing their strong correlation, $r(171) = .83, p < .01$, we expected to observe results similar to the SCQ analyses.

Romantic Relationship Satisfaction, Self Esteem, EAT -26 Analysis

Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect (ab path), $b = -.817$, 95% CI $[-1.46, -.35]$, between romantic relationships and eating behaviors

through self-esteem. As indicated in Figure 4., the c path is diminished (c' path) when the model accounts for self-esteem.

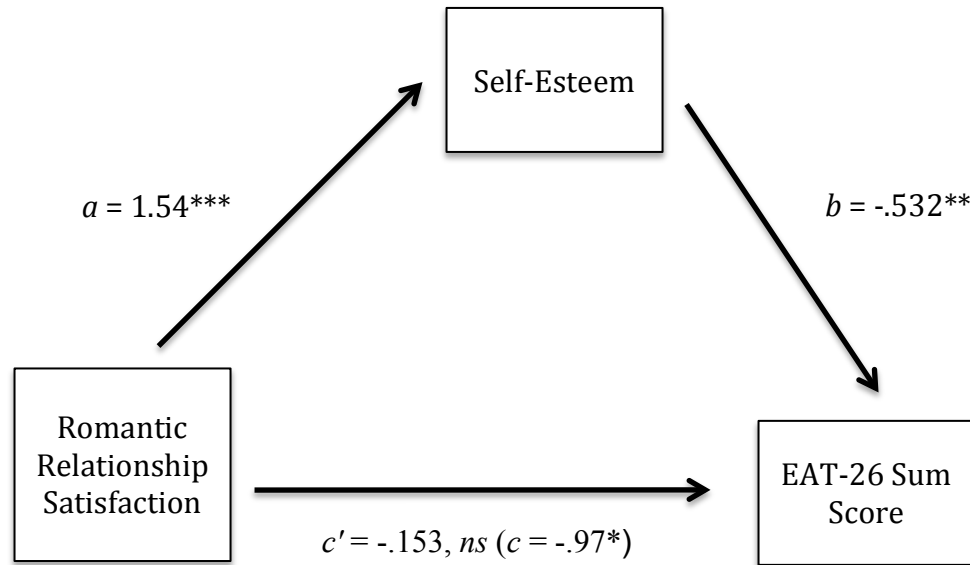


Figure 4. Relationship between romantic relationship satisfaction and disordered eating behaviors accounted for by self-esteem ($n=171$).

Parental Relationship Satisfaction, Self Esteem, EAT -26 Analysis.

Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect, ab path, $b = -1.208$, 95% CI $[-1.97, -.65]$, between parental relationships and eating behaviors through self-esteem. The initial direct effect between parental relationships and disordered eating behaviors was not present. After accounting for self-esteem this relationship was still not significant, however, accounting for self-esteem did redirect this initially negative relationship (see *Figure 5*), which suggests that, similar to self-concept,

once self-esteem was accounted for, relationships with higher satisfaction actually led to more disordered eating.

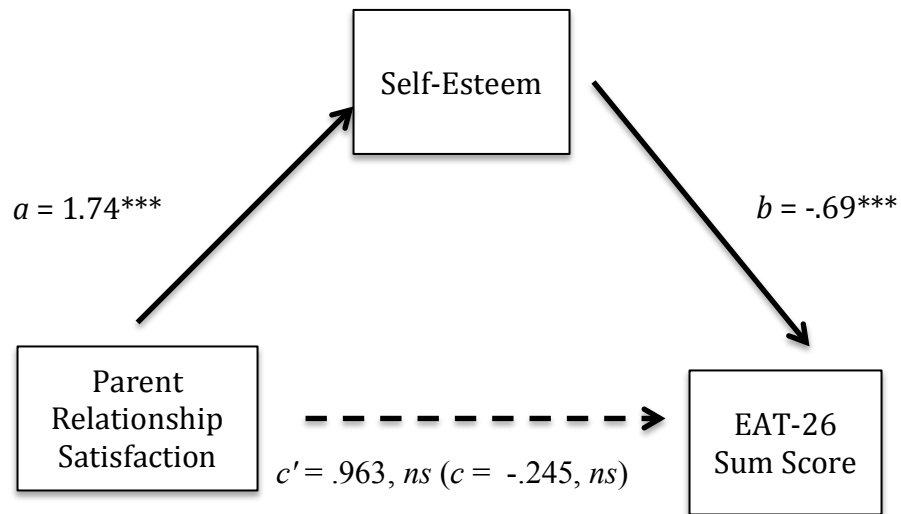


Figure 5. Relationship between parental relationship satisfaction and disordered eating behaviors accounted for by self-esteem ($n=171$).

Friendship Satisfaction, Self Esteem, EAT -26 Analysis. Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the presence of a significant indirect effect (ab path), $b = -1.41$, 95% CI $[-2.31, -.749]$, between friend relationships and eating behaviors through self-esteem. The initial direct effect between friend relationships and disordered eating behaviors was not present. Once self-esteem was accounted for, relationships with higher satisfaction actually led to more disordered eating, suggesting that self-esteem functions similar to the self-concept (see Figure 6).

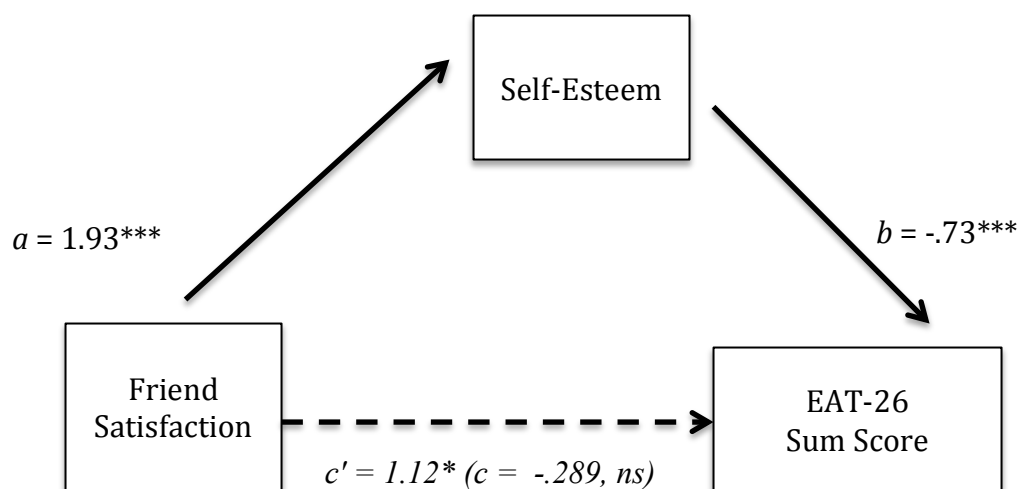


Figure 6. Relationship between friendship satisfaction and disordered eating behaviors accounted for by self-esteem ($n=171$).

BMI Correlations

Based on Stice's (2016) review that cites three different studies observing BMI (the calculation of an individual's body fat determined by dividing height in centimeters and weight in kilograms, National Heart Lung and Blood Institute) to serve as a risk factor for anorexia nervosa, it was hypothesized that a relationship would exist between female participants' Body Mass Index and the EAT-26. After calculating for each participant's Body Mass Index, BMI, a bivariate correlation was run between the EAT-26 and its three subscales, dieting, bulimia and food preoccupation, and oral control. The EAT-26 and BMI were not significantly correlated, $r(166) = -.02, p > .10$. The subscales were also not significantly correlated with BMI: dieting subscale, $r(166) = .011, p > .10$; bulimia and food preoccupation subscale, $r(166) = .003, p > .10$; and the oral control subscale, $r(166) = -.116, p > .10$.

Indirect Relationship Through Body Objectification

To test if close relationship satisfaction related to the self-concept, which in turn related to body objectification, which in turn related to disordered eating, we ran a conditional process model to test for this secondary indirect path. Because the self-concept and self-esteem were correlated, but self-concept provided a more robust indirect path, we chose to only examine the self-concept when analyzing body objectification's indirect role in this model.

Romantic Relationship Satisfaction, Self-Concept, Objectification, and EAT-

26 Analysis. Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the same significant indirect effect as reported above between romantic relationship satisfaction, the self-concept, and disordered eating, $b = .71$, 95% CI $[-1.31, -.27]$. An indirect pathway between romantic relationship satisfaction, body objectification, and disordered eating was not significant, $b = -.027$, 95% CI $[-.45, .33]$. The test which examines the indirect path from relationship satisfaction through the self-concept, then through body objectification (higher scores indicate body positivity), and then to disordered eating was significant, $b = -.214$, 95% CI $[-.574, -.018]$, (see *Figure 7*).

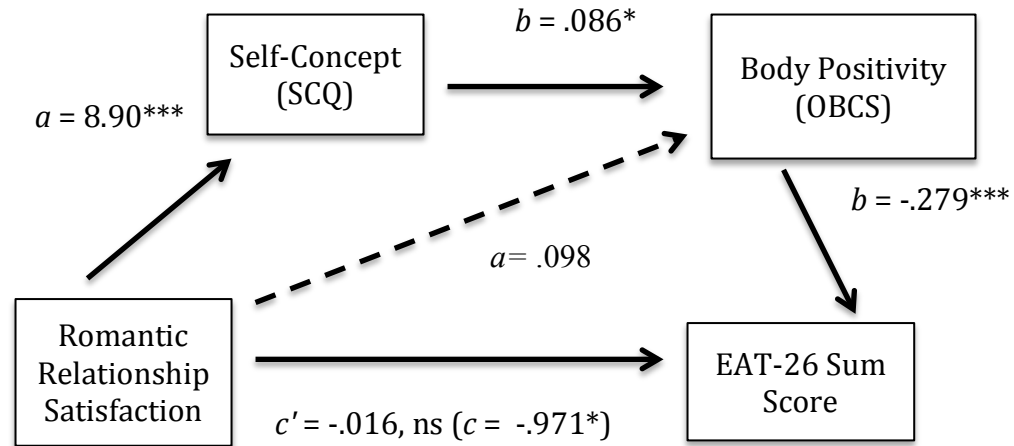


Figure 7. Relationship between romantic relationship satisfaction, the self-concept, body objectification, and disordered eating ($n=171$).

Parental Relationship Satisfaction, Self-Concept, Objectification, and EAT-

26 Analysis. Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the same indirect effect between parental relationship satisfaction, the self-concept, and disordered eating as reported earlier, $b = 1.01$, 95% CI $[-1.73, -.46]$. A significant pathway also appeared between parental relationship satisfaction, body objectification, and disordered eating, $b = .62$, 95% CI $[.19, 1.25]$. The presence of an indirect effect between parental satisfaction and eating behavior through both the self-concept and body objectification did appear, $b = -.43$, 95% CI $[-.93, -.15]$, such that lower parental relationship satisfaction was related to a lower self-concept, which in turn is related to less body positivity (more objectification) which then relates to greater levels of disordered eating (see Figure 8).

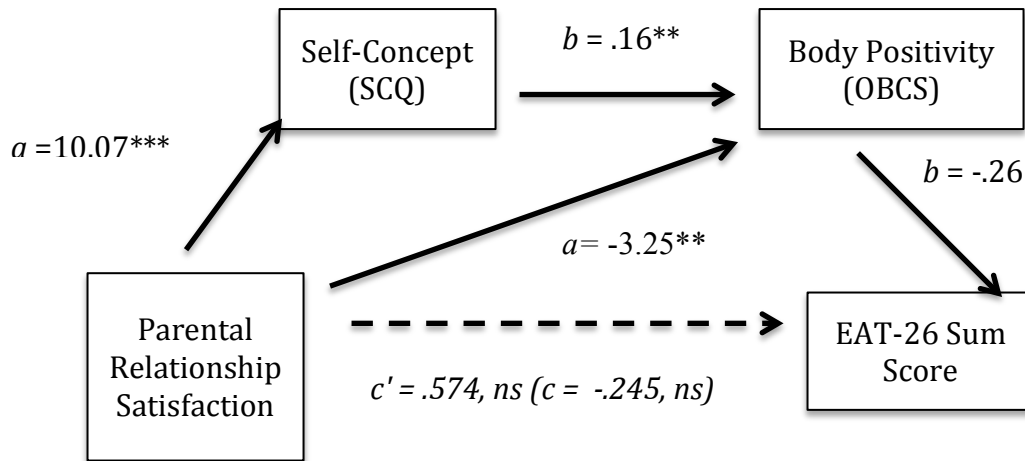


Figure 8. Relationship between parental relationship satisfaction, the self-concept, objectification, and disordered eating ($n=171$).

Friendship Satisfaction, Self-Concept, Objectification, and EAT-26 Analysis.

Conditional Process Modeling and Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples revealed the same indirect effect between friendship satisfaction, the self-concept, and disordered eating as reported earlier, $b = -1.48$, 95% CI $[-2.43, -.78]$. A significant indirect pathway also emerged between friendship relationship satisfaction, objectification, and disordered eating, $b = -.56$, 95% CI $[-1.17, 1.2]$. The presence of an indirect effect, $b = -.52$, 95% CI $[-1.09, -.18]$, did appear between friendship satisfaction and eating behaviors through the self-concept and body objectification, suggesting that lower friendship is related to a lower self-concept which in turn is related to less body positivity (higher body objectification) which then predicts disordered eating, (see Figure 9).

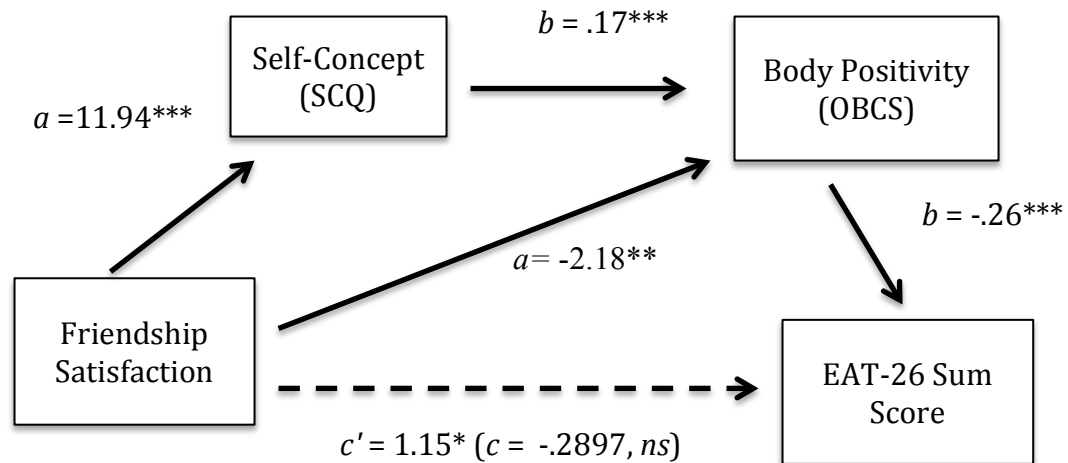


Figure 9. Relationship between friendship satisfaction, the self-concept, objectification, and disordered eating ($n=171$).

Close Relationship Satisfaction, Self-Concept, and DDQ-R Analyses

Comprehensively, the DDQ-R analyses failed to show some direct and any indirect effects. After excluding outliers who drank very heavily compared to the rest of the sample (+3 SDs away from the mean, $n = 13$), analyses were conducted for the DDQ-R outcomes. Only one measure will be reported here, but the analyses for all outcome measures yielded similar results. Conducting Conditional Process Modeling using Bias Corrected Bootstrap Confidence Intervals with 10,000 bootstrap samples to investigate whether close relationship satisfaction was indirectly related to the number of drinks consumed by participants during a typical weekend of the past month through the self-concept did not yield a significant indirect effect. Examining male and female drinking behavior collectively, there was no indirect relationship between romantic relationship satisfaction, self-concept, and drinking behavior (ab path), $b = .03$, 95% CI $[-.003, .069]$. Although a direct relationship was found between romantic relationship satisfaction and

the self-concept (a path) $b=8.11$, $p < .001$, as well as romantic relationship satisfaction and alcohol consumption, $c' = -.105$, $p < .01$ ($c = -.074$, $p < .05$), a significant relationship between the self-concept and alcohol consumption did not appear (b path), $b=.004$, $p > .05$, thus terminating the possibility of an indirect relationship.

Friendship satisfaction demonstrated similar results (ab path), $b = .02$, 95% CI [- .033, .075]. Unlike the romantic relationship conditions, not only was the path between self-concept and typical number of drinks not significant (b path), $b=.002$, $p > .05$, but the direct paths (c paths) were also not significant in this model, $c' = -.023$, $p > .05$ ($c = -.008$, $p > .05$).

Parental satisfaction and alcohol consumption functioned in a similar pattern to friendships, with no significant indirect path (ab path), $b = -.002$, 95% CI [- .042, .042], nor a significant relationship between the self-concept and alcohol consumption, (b path) $b=.0002$, $p > .05$, nor was a direct relationship present (c path), $c' = -.029$, $p > .05$ ($c = .027$, $p > .05$). A separate analysis was considered to determine whether gender was acting as a moderator in these models, but we did not have sufficient power to conduct this analysis. Self-esteem functioned in similar pattern to the self-concept.

Discussion

In general, there was evidence of an indirect relationship between close relationship satisfaction, self-concept, and disordered eating behavior. Close relationship satisfaction for romantic relationships was related to health behaviors, but this was accounted for by the self-concept (and to a lesser extent self-esteem). Surprisingly, there was no initial correlation between parental or friend relationship satisfaction and eating behavior (i.e., no evidence of a direct relationship), but we did observe an indirect

pathway through the self-concept between these two variables. High levels of close relationship satisfaction were positively correlated with the self-concept, which in turn were negatively correlated with disordered eating. This means that even when there was no initial observed relationship between close relationship satisfaction and eating behaviors, close relationships indirectly influenced eating behaviors through the self-concept. Therefore, these results provide correlational evidence that the self-concept plays an indirect role between close relationships and eating behaviors.

Notably, after accounting for this indirect path through the self-concept for peer and parental relationships, a direct opposite relationship between close relationship satisfaction and disordered eating emerged, such that as close relationship satisfaction increased, disordered eating also increased. It is possible that once the positive aspects of close relationships were accounted for through the self-concept, that relationship satisfaction then served as a proxy for adherence to social norms about eating behavior. For instance, individuals who have high satisfaction with their friend relationships might have positive contributions to their self-concept, but they also might be exposed to negative social norms about eating and body image through this relationship. The more important or more satisfying this relationship might be could, in theory, lead to more adherence to these norms. Future work would need to replicate this finding and investigate this possibility.

A second possible explanation is that the individuals who rate their relationships very highly, and likewise rate their self-concepts very highly, might be perfectionistic or respond with socially desirable answers. For example, for those individuals that want to appear perfect, they may have trouble admitting that their

relationships are not perfect. Therefore, once the self-concept was accounted for, high relationship satisfaction might relate to disordered eating. There is support for this possibility as there is evidence that the desire for perfection also relates to disordered eating. Studies have shown that perfectionism is associated with anorexic tendencies (Bastiani, Rao, Weltzin, & Kaye, 1995) and lifelong diagnoses of anorexia (Tyrka, Waldron, Graber, & Brooks-Gunn, 2002). Thus, it is possible that our findings are consistent with the notion that perfectionists are more likely to seek perfectionism in every area of their lives, including their close relationships and their body image.

When testing self-esteem in this indirect relationship, it functioned similarly to the self-concept yet produced less robust results. Because the self-concept and self-esteem questionnaires were highly correlated, we were unsurprised by these results, and suggest that although self-esteem does factor into the indirect relationship between close relationship satisfaction and disordered eating behaviors, the comprehensive self-concept, the various factors that contribute to an individual's sense of self, remains more influential to this indirect relationship than the isolated effects of self-esteem. Although the primary focus of the current work was not to distinguish between the self-concept and self-esteem, future analyses could compare these indirect paths in the same model. This could be a potentially important distinction because although much of the prior work on eating disorders has focused on self-esteem, the self-concept might be an additional important lens through which to examine how social factors might influence this particular health behavior.

The results did not yield a significant bivariate correlation between BMI and the EAT-26 or its three subscales, but the negative correlation between the oral control

subscale and BMI approached significance. Thus, it is unclear whether this finding was indicative of the non-clinical sample or occurred because BMI is not only an indicator of potentially unhealthy habits, but also healthy diet (i.e., those who watch what they eat are more physically fit). It is likely that had the current work surveyed a clinical population, particularly of people diagnosed with anorexia, a significant correlation would have emerged between this particular subscale and BMI.

There was no direct relationship between romantic relationship satisfaction and body objectification (higher scores indicate body positivity), but body objectification was indirectly related to romantic relationships and disordered eating, through the self-concept. There was both a direct relationship between parental relationship and friendships and body objectification as well as an indirect path between relationships, the self-concept, body objectification, and disordered eating. The results showed that close relationships are positively related to the self-concept, which is positively related to body objectification, which in turn, was negatively associated with the EAT-26, demonstrating that those experiencing less body positivity (i.e., more objectification) were more likely to engage in disordered eating behaviors. These findings align with our hypotheses and the prior literature as more negative versions of the self-concept prompt individuals to view their bodies as objects to be appraised by themselves and more importantly others, rather than human beings filled with valuable traits and characteristics. Overall, these results make intuitive sense because greater negative body objectification is associated with higher levels of disordered eating and individuals who are deeply concerned with their appearance are likely more willing to take extensive measures to achieve a satisfactory appearance.

Contrary to our hypothesis, the self-concept and self-esteem did not relate to alcohol consumption. In each measure of alcohol consumption (through the DDQ-R), the self-concept and self-esteem did not predict a participant's alcohol consumption, thus preventing the possibility of an indirect relationship. Although these results may have occurred due to the fact that there is simply no real-world relationship between the self-concept (and self-esteem) and alcohol consumption, we also speculate that these results may have occurred due to the complicated layout of the DDQ-R. Despite being a widely-used survey for assessing alcohol consumption, it may not match the way that people actually remember their own behavior. It is also possible that many of our participants may have felt uncomfortable or guilty reporting their accurate drinking behaviors, especially if they were under the age of 21. Additionally, participants may not have remembered the amount of alcohol they consumed throughout the past month, or had trouble deciding which week was a typical drinking week as compared to a heaviest drinking week. Therefore, if they were unable to recall their precise drinking behavior, these participants may have reported inaccurate responses and therefore any relationship to self-concept or self-esteem would have not emerged even if it existed. It is also entirely possible that drinking is normative on this college campus, and therefore does not correlate with self-concept in the same way that eating behaviors do. Future work should consider other ways of measuring drinking behavior.

Further limitations include the fact that an undergraduate population completed this study and future research should be conducted to investigate if close relationships indirectly influence eating behavior through the self-concept for women who are not in college. Another limitation of the current study was that although romantic relationships

did indicate an indirect effect which accounted for an initial relationship between romantic relationship satisfaction and disordered eating behavior, we must take into account that many of the participants were not currently involved in a romantic relationship and thus answered the questions about their relationship in a hypothetical manner, limiting the generalizability of this finding to people in actual relationships. There was not sufficient statistical power to conduct the analyses only focusing on people who were in a romantic relationship (42%, $n = 105$), so future research should recruit these individuals directly to determine how romantic relationships relate to self-concept and health behaviors. Finally, this study is purely correlational, and all of the measures were assessed at the same time. Care was taken to construct the survey so that close relationships were always assessed before self-concept related constructs, and that health behaviors were assessed last, but this does not mean that our results have any causal implications. Future work should attempt to either longitudinally assess these measures to gauge how they influence one another over time or should experimentally investigate the way these constructs influence one another. Future directions could also include examining family dynamics such as sibling and parental conflict and how these influence these health behaviors.

Overall, this work provides initial evidence that close relationship satisfaction can indirectly influence disordered eating behavior through the self-concept and body objectification. Additionally, once the self-concept was accounted for, higher levels of close relationship satisfaction led to significantly more disordered eating. These results potentially demonstrate that close relationships can provide simultaneous positive and negative health benefits, and the initial lack of a direct effect between close relationship

satisfaction and eating behavior may have been the result of suppression effects (in which positive and negative aspects of these relationships on health may have obscured the competing effects). These findings hold implications for both the social psychology and clinical psychology fields as they further strengthen the understanding that social factors are related to health outcomes.

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Appendices

APPENDIX A

This measure was heavily adapted from Funk and Rogge's Couples Satisfaction Index (CSI-32; 2007) and was designed to determine relationship satisfaction and functioning in several areas, including how positively the individual views the relationship, how much support is perceived, and how much they feel valued.

Instructions for participants: In this section, you will be asked questions about your **relationships with your parents (or primary care givers)/ the people in your friend group** and how these relationships make you feel.

Unless otherwise noted, please rate the accuracy of these statements on a scale from 1-10 (1 being very inaccurate and 10 being very accurate).

Instructions for Romantic Partner Relationships Only:

In this section, you will be asked questions about **your current romantic relationship** and how this relationship makes you feel. If you are not currently in a romantic relationship, please think about these questions in the context of either a past romantic relationship **or** how you think you would act if you were involved in a romantic relationship.

1. Your relationships with your parents/romantic partner/friend group meet(s) your expectations.
2. You are able to assert yourself (feel like you can establish a sense of control) in the presence of your parents/romantic partner/friend group.
3. Your parents/romantic partner/friend group make(s) you happy.
4. You feel comfortable laughing and acting in a ridiculous manner with your parents/romantic partner/friend group.
5. When you have good news your parents/romantic partner/friend group help(s) you celebrate.
6. Your parents/romantic partner/friend group provide(s) comfort in your disappointments.
7. Interacting with your parents/romantic partner/friend group contributes to your sense of fulfillment.
8. You believe that your parents/romantic partner/friend group unconditionally perceive(s) you as worthy.
9. You believe that you must perform in a certain way to gain your parents/romantic partner/friend group's approval.

10. You believe that your parents/romantic partner/friend group will still love you in the presence of failure.
11. You feel competent when interacting with your parents/romantic partner/friend group.
12. You feel self-conscious in the presence of your parents/romantic partner/friend group.
13. Your parents/romantic partner's/friend group's instructions or comments sound like harsh criticisms and restrictive rules.
14. Your parents'/romantic partner's/friend group's instructions or comments sound like helpful critiques (coming from a caring attitude).
15. Your relationship with your parents/romantic partner/friend group can sometimes feel like a burden.
16. Thinking about or spending time with your parents/romantic partner/friend group causes you to feel frustrated.
17. Interaction with your parents/romantic partner/friend group stimulates or excites you.
18. Your parents/romantic partner/friend group like you.

APPENDIX B

Robson Self-Concept Questionnaire (Robson, 1989)

	<i>Completely Disagree</i>		<i>Disagree</i>		<i>Agree</i>		<i>Completely Agree</i>	
1. I have control over my own life.	0	1	2	3	4	5	6	7
2. I'm easy to like.	0	1	2	3	4	5	6	7
3. I never feel down in the dumps for very long.	0	1	2	3	4	5	6	7
4. I can never seem to achieve anything worthwhile.	0	1	2	3	4	5	6	7
5. There are lots of things I'd change about myself if I could.	0	1	2	3	4	5	6	7
6. I am not embarrassed to let people know my opinions.	0	1	2	3	4	5	6	7
7. I don't care what happens to me.	0	1	2	3	4	5	6	7
8. I seem to be very unlucky.	0	1	2	3	4	5	6	7
9. Most people find me reasonably attractive.	0	1	2	3	4	5	6	7
10. I'm glad I'm who I am.	0	1	2	3	4	5	6	7
11. Most people would take advantage of me if they could.	0	1	2	3	4	5	6	7
12. I am a reliable person.	0	1	2	3	4	5	6	7
13. It would be boring if I talked about myself.	0	1	2	3	4	5	6	7
14. When I'm successful, there's usually a lot of luck involved.	0	1	2	3	4	5	6	7
15. I have a pleasant personality.	0	1	2	3	4	5	6	7
16. If a task is difficult, that just makes me all the more determined.	0	1	2	3	4	5	6	7
17. I often feel humiliated.	0	1	2	3	4	5	6	7
18. I can usually make up my mind and stick to it.	0	1	2	3	4	5	6	7
19. Everyone else seems much more confident and contented than me.	0	1	2	3	4	5	6	7
20. Even when I quite enjoy myself, there doesn't seem much purpose to it all.	0	1	2	3	4	5	6	7
21. I often worry about what other people are thinking about me.	0	1	2	3	4	5	6	7
22. There's a lot of truth in the saying "What will be, will be".	0	1	2	3	4	5	6	7
23. I look awful these days.	0	1	2	3	4	5	6	7
24. If I really try, I can overcome most of my problems.	0	1	2	3	4	5	6	7
25. It's pretty tough to be me.	0	1	2	3	4	5	6	7
26. I feel emotionally mature.	0	1	2	3	4	5	6	7
27. When people criticise me, I often feel helpless and second-rate.	0	1	2	3	4	5	6	7
28. When progress is difficult, I often find myself thinking	0	1	2	3	4	5	6	7

it's just not worth the effort.								
29. I can like myself even when others don't.	0	1	2	3	4	5	6	7
30. Those who know me well are fond of me.	0	1	2	3	4	5	6	7

Scores on the Robson SCQ

NB You do not *have* to score the Robson yourself (or any of the others) — the database has an automatic scoring system, and experience in the pilot was that there is a *high* rate of human error in scoring this particular questionnaire! The information below is for those who are interested only.

Scoring

Some items are scored as printed, others are reversed.

- The 14 'normal' items (Qu 1, 2, 3, 6, 9, 10, 12, 15, 16, 18, 24, 26, 29, 30) have a full stop after the question number (e.g. 2.) — scoring for these is taken straight off the scale as printed.
- The 16 'reversed' items (Qu 4, 5, 7, 8, 11, 13, 14, 17, 19, 20, 21, 22, 23, 25, 27, 28) have a colon after the question number (e.g. 4:) — scoring is *reversed* for these (i.e. 0 = 7, 1 = 6 etc).
- Add up the numbers obtained like this to get the total score.

Norms

Reference group	Mean total score	S.D.
<i>From Robson (1989):</i>		
70 controls with "...no evidence of psychological disorder..."	137.0	20.2
51 patients with DSM-III GAD	108.0	24.8
47 consecutive referrals to Psychotherapy Dept	99.8	24.0
<i>From Robson (personal communication)</i>		
200 controls	140.0	19.8
<i>From Romans, Martin & Mullen (1996) [New Zealand sample]:</i>		
225 women from random community sample (those who did not report CSA)	147.4	25.8
252 women from random community sample (those who <i>did</i> report CSA)	138.8	29.6

Pooling the Robson control samples gives an estimate for the 'normal' mean in British samples = 139.2 (SD=19.9); so to simplify a bit for routine clinical use we take it as mean = 140, SD = 20.

APPENDIX C

The Objectified Body Consciousness Scale (McKinley & Hyde, 1996)

1. I rarely think about how I look.
 - ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither agree nor disagree
 - ☐ Somewhat Agree
 - ☐ Agree
 - ☐ Strongly Agree

2. I think that it is more important that my clothes are comfortable than whether they look good on me.
 - ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither agree nor disagree
 - ☐ Somewhat Agree
 - ☐ Agree
 - ☐ Strongly Agree

3. I think more about how my body feels than how my body looks.
 - ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither agree nor disagree
 - ☐ Somewhat Agree
 - ☐ Agree
 - ☐ Strongly Agree

4. I rarely compare how I look with how other people look.
 - ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither agree nor disagree
 - ☐ Somewhat Agree
 - ☐ Agree
 - ☐ Strongly Agree

5. During the day, I think about how I look many times.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

6. I often worry about whether the clothes I am wearing make me look good.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

7. I rarely worry about how I look to other people.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

8. I am more concerned with what my body can do than how it looks.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

9. When I can't control my weight, I feel like something must be wrong with me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

10. I feel ashamed of myself when I haven't made the effort to look my best.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

11. I feel like I must be a bad person when I don't look as good as I could.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

12. I would be ashamed for people to know what I really weigh.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

13. I never worry that something is wrong with me when I am not exercising as much as I should.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

14. When I'm not exercising enough, I question whether I am a good enough person.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

15. Even when I can't control my weight, I think I'm an okay person.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

16. When I'm not the size I think I should be, I feel ashamed.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

17. I think a person is pretty much stuck with the looks they are born with.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

18. A large part of being in shape is having that kind of body in the first place.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

19. I think a person can look pretty much how they want to if they are willing to work at it.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

20. I really don't think I have much control over how my body looks.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

21. I think a person's weight is mostly determined by the genes they are born with.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

22. It doesn't matter how hard I try to change my weight, it's probably always going to be about the same.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

23. I can weigh what I'm supposed to when I try hard enough.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

24. The shape you are in depends mostly on your genes.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

*Items 5,6,9,11,12,14,16,19, and 23 are reverse scored

APPENDIX D

Rosenberg Self Esteem Scale (Rosenberg, 1965)

1. On the whole, I am satisfied with myself.
2. *At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

*items 2,5,6,8,9 are reverse scored

APPENDIX E

The EAT-26 (Garner et al., 1982).

For this section of the survey, we are now interested in some of your health behaviors

For the following questions, please indicate how often you engage in the stated behavior or thought process. Please answer as accurately, honestly, and completely as possible. There are no right or wrong answers. All of your responses are anonymous.

1. I am terrified about being overweight.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

2. I avoid eating when I am hungry.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

3. I find myself preoccupied with food.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

4. I have gone on eating binges where I feel that I may not be able to stop.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

5. I cut my food into small pieces.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

6. I am aware of the calorie content of foods that I eat.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

7. I particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

8. I feel that others would prefer if I ate more.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

9. I vomit after I have eaten.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

10. I feel extremely guilty after eating.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

11. I am occupied with a desire to be thinner.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

12. I think about burning up calories when I exercise.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

13. Other people think that I am too thin.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

14. I am preoccupied with the thought of having fat on my body.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

15. I take longer than others to eat my meals.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

16. I avoid foods with sugar in them.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

17. I eat diet foods.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

18. I feel that food controls my life.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

19. I display self-control around food.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

20. I feel that others pressure me to eat.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

21. I give too much time and thought to food.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

22. I feel uncomfortable after eating sweets.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

23. I engage in dieting behavior.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

24. I like my stomach to be empty.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

25. I have the impulse to vomit after meals.

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

26. I enjoy trying new rich foods. (reverse scored)

- ☐ always
- ☐ usually
- ☐ often
- ☐ sometimes
- ☐ rarely
- ☐ never

APPENDIX F

The Daily Drinking Questionnaire (Murphy, McDevitt-Murphy, & Barnett 2005)

Daily Drinking Questionnaire-Revised (DDQ-R)

WHEN ASKED HOW MUCH YOU DRINK IN THE FOLLOWING QUESTIONS USE THE FOLLING CHART.

One Standard Drink

- = 12 ounces of beer (5% alcohol)
- = two 8 ounce glass of draft
- = one pint of draft
- = 1.5 ounces liquor
- = 5 ounces table wine
- = 3.5 ounces port sherry

Beer

- 1 pint (17 oz / 500 ml) = 1.5 standard drinks
- 1 large can (25 oz / 750 ml) = 2 standard drinks
- 1 king can (32 oz / 950 ml) = 2.7 standard drinks

Wine

- 1 bottle (25 oz / 750 ml) = 5 standard drinks
- 1 bottle (40 oz / 1.41 l) = 8 standard drinks

Hard Liquor / Spirits

- 1 mickey (12 oz / 355 ml) = 8 standard drinks
- 1 bottle (25 oz / 750 ml) = 17 standard drinks
- 1 bottle (40 oz / 1.14 l) = 27 standard drinks

INSTRUCTIONS FOR RECORDING DRINKING DURING A TYPICAL WEEK

IN THE CALENDAR BELOW, PLEASE FILL-IN YOUR DRINKING RATE AND TIME DRINKING DURING A **TYPICAL WEEK** IN THE LAST **30 DAYS**.

First, think of a *typical week* in the last *30 days* (Where did you live? What were your regular weekly activities? Were you working or going to school? etc). Try to remember as accurately as you can, *how much* and for *how long* you *typically drank* in a week during that one-month period?

For each day of the week in the calendar below, fill in the **number of standard drinks typically consumed on that day** in the upper box and the **typical number of hours you drank** that day in the lower box.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
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Number of Drinks							
Number of Hours Drinking							

INSTRUCTIONS FOR RECORDING DRINKING FOR YOUR HEAVIEST DRINKING WEEK

IN THE CALENDAR BELOW, PLEASE FILL-IN YOUR DRINKING RATE AND TIME DRINKING DURING YOUR **HEAVIEST DRINKING WEEK** IN THE LAST **30 DAYS**.

First, think of your *heaviest drinking week* in the last *30 days* (Where did you live? What were your regular weekly activities? Where were you working or going to school? etc). Try to remember as accurately as you can, *how much* and for *how long* you drank during your *heaviest drinking week* in that one-month period?

For each day of the week in the calendar below, fill in the **number of standard drinks consumed on that day** in the upper box and the **number of hours you drank** that day in the lower box.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of Drinks							
Number of Hours Drinking							

Drinking Quantity/Frequency Index (Cahallan's Q/F Index)

1. **How often did you drink during the last *month*?** (check one)
 - a. I did not drink at all.
 - b. About once a month.
 - c. Two to three times a month.
 - d. Once or twice a week.
 - e. Three to four times a week.
 - f. Nearly every day.
 - g. Once a day or more.

2. **Think of a typical weekend evening** (Friday or Saturday) during the last *month*. How **much** did you drink on that evening? (check one)

0 drinks	8 drinks	16 drinks	24 drinks
1 drinks	9 drinks	17 drinks	25 drinks
2 drinks	10 drinks	18 drinks	26 drinks
3 drinks	11 drinks	19 drinks	27 drinks
4 drinks	12 drinks	20 drinks	28 drinks
5 drinks	13 drinks	21 drinks	29 drinks
6 drinks	14 drinks	22 drinks	30 drinks
7 drinks	15 drinks	23 drinks	<i>More than 30</i>

3. **Think of the occasion** (any day of the week) **you drank the most** during the last *month*. How **much** did you drink? (check one)

0 drinks	8 drinks	16 drinks	24 drinks
1 drinks	9 drinks	17 drinks	25 drinks
2 drinks	10 drinks	18 drinks	26 drinks
3 drinks	11 drinks	19 drinks	27 drinks
4 drinks	12 drinks	20 drinks	28 drinks
5 drinks	13 drinks	21 drinks	29 drinks
6 drinks	14 drinks	22 drinks	30 drinks
7 drinks	15 drinks	23 drinks	<i>More than 30</i>